January 4, 2013

Mr. Jason Gunter
Remedial Project Manager
U.S. Environmental Protection Agency
Region 7 - Superfund Branch
901 North 5th Street
Kansas City, KS 66101

Re: National Mine Tailings Site Progress Report

Dear Mr. Gunter:

As required by Article VI, Section 51 of the Unilateral Administrative Order (Docket No.CERCLA-07-2006-0231) for the referenced project and on behalf of The Doe Run Company and NL Industries, Inc., the progress report for the period November 1, 2012 through November 30, 2012 is enclosed. If you have any questions or comments, please call me at 573-638-5020 or Mark Nations at 573-518-0600.

Sincerely,

Ty L. Morris, P.E., R.G.
Vice President

TLM/jms
Enclosure
c: Mark Nations – TDRC
Matt Wohl – TDRC (electronic only)
Kevin Lombardozzi – NL Industries, Inc.
John Kennedy – City of Park Hills
Norm Lucas – Park Hills – Leadington Chamber of Commerce
Kathy Rangen – MDNR
Tim Skoglund – Barr Engineering

OTCR 4.2

OU00

National Mine Tailings Site
Park Hills, Missouri
Removal Action - Monthly Progress Report
Period: November 1, 2012 – November 30, 2012

1. **Actions Performed and Problems Encountered This Period:**
   a. Work at the site began on the task of demobilizing from the site. As of the end of the period, work on this task had been completed.
   b. Work at the site began on the task of repairing Commerce Drive. This work focused on the task of repaving the street. This work was completed by the City of Park Hills. As of the end of the period, work on this task had been completed.

2. **Analytical Data and Results Received This Period:**
   a. During this period, water samples were collected at the sampling locations identified in Appendix C of the Removal Action Work Plan where water was present. Copies of the analytical results from the last sampling event are included with this progress report.
   b. During this period, the Ambient Air Monitoring Report for August 2012 was received. Any issues identified in this report are discussed below. A copy of this document has been sent to your attention.

      The August 2012 Ambient Air Monitoring Report noted the following:
      - The action levels for lead and dust were not exceeded.
      - No samples were taken with the National #1 (Ozark) TSP monitor on 08/23/12 due to mechanical failure. Upon discovery, the issue was corrected.

3. **Developments Anticipated and Work Scheduled for Next Period:**
   a. Complete work in the Mine Shaft Area.
   b. Complete monthly water sampling activities as described in the Removal Action Work Plan.
   c. Complete air monitoring activities as described in the Removal Action Work Plan.

4. **Changes in Personnel:**
   a. None.

5. **Issues or Problems Arising This Period:**
   a. None.

6. **Resolution of Issues or Problems Arising This Period:**
   a. None.

End of Monthly Progress Report

November 28, 2012

Allison Olds
Barr Engineering Company
1001 Diamond Ridge
Suite 1100
Jefferson City, MO 65109
TEL: (573) 638-5007
FAX: (573) 638-5001

RE: National MTS - 25/86-0003 **WorkOrder:** 12110723

Dear Allison Olds:

TEKLAB, INC received 2 samples on 11/15/2012 2:25:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Michael L. Austin
Project Manager
(618)344-1004 ex 16
MAustin@teklabinc.com

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12110723
Report Date: 28-Nov-12

This reporting package includes the following:

Client: Barr Engineering Company
Work Order: 12110723
Client Project: National MTS - 25/86-0003
Report Date: 28-Nov-12

Abbr Definition

CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MB	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

- # - Unknown hydrocarbon
- B - Analyte detected in associated Method Blank
- E - Value above quantitation range
- H - Holding times exceeded
- M - Manual Integration used to determine area response
- ND - Not Detected at the Reporting Limit
- R - RPD outside accepted recovery limits
- S - Spike Recovery outside recovery limits
- X - Value exceeds Maximum Contaminant Level

Client: Barr Engineering Company
Work Order: 12110723
Client Project: National MTS - 25/86-0003
Report Date: 28-Nov-12

Cooler Receipt Temp: 0.0 °C

Locations and Accreditations

Collinsville		Springfield		Kansas City	
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	Address	3920 Pintail Dr Springfield, IL 62711-9415	Address	8421 Nieman Road Lenexa, KS 66214
Phone	(618) 344-1004	Phone	(217) 698-1004	Phone	(913) 541-1998
Fax	(618) 344-1005	Fax	(217) 698-1005	Fax	(913) 541-1998
Email	jhriley@teklabinc.com	Email	KKlostermann@teklabinc.com	Email	dthompson@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2013	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2013	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2013	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2013	Springfield
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2013	Collinsville
Arkansas	ADEQ	88-0966		3/14/2013	Collinsville
Illinois	IDPH	17584		4/30/2013	Collinsville
Kentucky	UST	0073		5/26/2013	Collinsville
Missouri	MDNR	00930		4/13/2013	Collinsville
Oklahoma	ODEQ	9978		8/31/2013	Collinsville

Client: Barr Engineering Company **Work Order:** 12110723

Client Project: National MTS - 25/86-0003 **Report Date:** 28-Nov-12

Lab ID: 12110723-001 **Client Sample ID:** Nat-East

Matrix: AQUEOUS **Collection Date:** 11/14/2012 10:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	200	S	**225**	mg/L	20	11/28/2012 5:01	R170923
MS and/or MSD did not recover within control limits due to matrix interference.								
STANDARD METHOD 4500-H B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		**8.03**		1	11/16/2012 8:18	R170567
STANDARD METHODS 2340 C								
Hardness, as (CaCO3)	NELAP	5		**520**	mg/L	1	11/16/2012 14:07	R170603
STANDARD METHODS 2540 C (TOTAL)								
Total Dissolved Solids	NELAP	20		**630**	mg/L	1	11/19/2012 18:37	R170714
STANDARD METHODS 2540 D								
Total Suspended Solids	NELAP	6		**< 6**	mg/L	1	11/15/2012 17:54	R170561
STANDARD METHODS 2540 F								
Solids, Settleable	NELAP	0.1		**< 0.1**	ml/L	1	11/15/2012 17:00	R170564
STANDARD METHODS 5310 C, ORGANIC CARBON								
Total Organic Carbon (TOC)	NELAP	1.0		**< 1.0**	mg/L	1	11/16/2012 12:40	R170625
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Cadmium	NELAP	2.00		**< 2.00**	µg/L	1	11/19/2012 19:14	83478
Zinc	NELAP	10.0		**147**	µg/L	1	11/19/2012 19:14	83478
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Cadmium	NELAP	2.00		**< 2.00**	µg/L	1	11/16/2012 16:29	83449
Zinc	NELAP	10.0		**153**	µg/L	1	11/16/2012 16:29	83449
STANDARD METHODS 3030 E, 3113 B, METALS BY GFAA								
Lead	NELAP	2.00	X	**5.64**	µg/L	1	11/16/2012 13:50	83431
STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)								
Lead	NELAP	2.00	X	**5.84**	µg/L	1	11/16/2012 8:55	83435

Client: Barr Engineering Company
Work Order: 12110723
Client Project: National MTS - 25/86-0003
Report Date: 28-Nov-12
Lab ID: 12110723-002
Client Sample ID: Nat-NW
Matrix: AQUEOUS
Collection Date: 11/14/2012 11:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	20		74	mg/L	2	11/20/2012 21:56	R170781
STANDARD METHOD 4500-H B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		8.18		1	11/16/2012 8:19	R170567
STANDARD METHODS 2340 C								
Hardness, as (CaCO3)	NELAP	5		230	mg/L	1	11/16/2012 14:07	R170603
STANDARD METHODS 2540 C (TOTAL)								
Total Dissolved Solids	NELAP	20		242	mg/L	1	11/19/2012 18:37	R170714
STANDARD METHODS 2540 D								
Total Suspended Solids	NELAP	6		< 6	mg/L	1	11/15/2012 17:54	R170561
STANDARD METHODS 2540 F								
Solids, Settleable	NELAP	0.1		< 0.1	ml/L	1	11/15/2012 17:00	R170564
STANDARD METHODS 5310 C, ORGANIC CARBON								
Total Organic Carbon (TOC)	NELAP	1.0		1.0	mg/L	1	11/16/2012 13:06	R170625
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	11/19/2012 19:20	83478
Zinc	NELAP	10.0		< 10.0	µg/L	1	11/19/2012 19:20	83478
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	11/16/2012 16:40	83449
Zinc	NELAP	10.0		< 10.0	µg/L	1	11/16/2012 16:40	83449
STANDARD METHODS 3030 E, 3113 B, METALS BY GFAA								
Lead	NELAP	2.00		< 2.00	µg/L	1	11/16/2012 14:00	83431
STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)								
Lead	NELAP	2.00		< 2.00	µg/L	1	11/16/2012 9:06	83435

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12110723
Report Date: 28-Nov-12

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
12110723-001	Nat-East	Aqueous	5	11/14/2012 10:40
12110723-002	Nat-NW	Aqueous	5	11/14/2012 11:10

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12110723
Report Date: 28-Nov-12

Sample ID	Client Sample ID / Test Name	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
12110723-001A	Nat-East	11/14/2012 10:40	11/15/2012 14:25		
	Standard Methods 2540 F				11/15/2012 17:00
12110723-001B	Nat-East	11/14/2012 10:40	11/15/2012 14:25		
	EPA 600 375.2 Rev 2.0 1993 (Total)				11/28/2012 5:01
	Standard Method 4500-H B, Laboratory Analyzed				11/16/2012 8:18
	Standard Methods 2340 C				11/16/2012 14:07
	Standard Methods 2540 C (Total)				11/19/2012 18:37
	Standard Methods 2540 D				11/15/2012 17:54
12110723-001C	Nat-East	11/14/2012 10:40	11/15/2012 14:25		
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			11/16/2012 11:20	11/16/2012 16:29
	Standard Methods 3030 E, 3113 B, Metals by GFAA			11/15/2012 16:50	11/16/2012 13:50
12110723-001D	Nat-East	11/14/2012 10:40	11/15/2012 14:25		
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)			11/16/2012 21:24	11/19/2012 19:14
	Standard Methods 3030 B, 3113 B, Metals by GFAA (Dissolved)			11/15/2012 20:25	11/16/2012 8:55
12110723-001E	Nat-East	11/14/2012 10:40	11/15/2012 14:25		
	Standard Methods 5310 C, Organic Carbon				11/16/2012 12:40
12110723-002A	Nat-NW	11/14/2012 11:10	11/15/2012 14:25		
	Standard Methods 2540 F				11/15/2012 17:00
12110723-002B	Nat-NW	11/14/2012 11:10	11/15/2012 14:25		
	EPA 600 375.2 Rev 2.0 1993 (Total)				11/20/2012 21:56
	Standard Method 4500-H B, Laboratory Analyzed				11/16/2012 8:19
	Standard Methods 2340 C				11/16/2012 14:07
	Standard Methods 2540 C (Total)				11/19/2012 18:37
	Standard Methods 2540 D				11/15/2012 17:54
12110723-002C	Nat-NW	11/14/2012 11:10	11/15/2012 14:25		
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			11/16/2012 11:20	11/16/2012 16:40
	Standard Methods 3030 E, 3113 B, Metals by GFAA			11/15/2012 16:50	11/16/2012 14:00
12110723-002D	Nat-NW	11/14/2012 11:10	11/15/2012 14:25		
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)			11/16/2012 21:24	11/19/2012 19:20
	Standard Methods 3030 B, 3113 B, Metals by GFAA (Dissolved)			11/15/2012 20:25	11/16/2012 9:06
12110723-002E	Nat-NW	11/14/2012 11:10	11/15/2012 14:25		
	Standard Methods 5310 C, Organic Carbon				11/16/2012 13:06

Client: Barr Engineering Company
Work Order: 12110723
Client Project: National MTS - 25/86-0003
Report Date: 28-Nov-12

EPA 600 375.2 REV 2.0 1993 (TOTAL)

Batch R170781 **SampType:** MBLK Units mg/L
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		< 10						11/20/2012

Batch R170781 **SampType:** LCS Units mg/L
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		21	20	0	106.1	90	110	11/20/2012

Batch R170881 **SampType:** MBLK Units mg/L
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		< 10						11/26/2012

Batch R170881 **SampType:** LCS Units mg/L
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		21	20	0	103.6	90	110	11/26/2012

Batch R170923 **SampType:** MBLK Units mg/L
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		< 10						11/27/2012

Batch R170923 **SampType:** LCS Units mg/L
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		20	20	0	101.7	90	110	11/27/2012

Batch R170923 **SampType:** MS Units mg/L
SampID: 12110723-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	200		444	200	225.0	109.3	90	110	11/28/2012

Batch R170923 **SampType:** MSD Units mg/L RPD Limit 10
SampID: 12110723-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate	200	S	457	200	225.0	116.1	443.6	3.03	11/28/2012

Client: Barr Engineering Company
Work Order: 12110723
Client Project: National MTS - 25/86-0003
Report Date: 28-Nov-12

STANDARD METHOD 4500-H B, LABORATORY ANALYZED

Batch R170567 **SampType:** LCS Units
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab pH	1.00		**6.98**	7.00	0	99.7	99.1	100.8	11/16/2012

Batch R170567 **SampType:** DUP Units RPD Limit **10**
SampID: 12110723-001BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		**8.03**				8.030	0.00	11/16/2012

Batch R170567 **SampType:** DUP Units RPD Limit **10**
SampID: 12110723-002BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		**8.18**				8.180	0.00	11/16/2012

STANDARD METHODS 2340 C

Batch R170603 **SampType:** MBLK Units **mg/L**
SampID: MB-R170603

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO3)	5		**< 5**						11/16/2012

Batch R170603 **SampType:** LCS Units **mg/L**
SampID: LCS-R170603

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO3)	5		**1000**	1000	0	100.0	90	110	11/16/2012

Batch R170603 **SampType:** MS Units **mg/L**
SampID: 12110723-002BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO3)	5		**410**	200	230.0	90.0	85	115	11/16/2012

Batch R170603 **SampType:** MSD Units **mg/L** RPD Limit **10**
SampID: 12110723-002BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Hardness, as (CaCO3)	5		**410**	200	230.0	90.0	410.0	0.00	11/16/2012

STANDARD METHODS 2540 C (TOTAL)

Batch R170714 **SampType:** MBLK Units **mg/L**
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		**< 20**						11/19/2012
Total Dissolved Solids	20		**< 20**						11/19/2012
Total Dissolved Solids	20		**< 20**						11/19/2012
Total Dissolved Solids	20		**< 20**						11/19/2012

Client: Barr Engineering Company **Work Order:** 12110723

Client Project: National MTS - 25/86-0003 **Report Date:** 28-Nov-12

STANDARD METHODS 2540 C (TOTAL)

Batch R170714 **SampType:** LCS Units mg/L

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		**990**	1000	0	99.0	90	110	11/19/2012

Batch R170714 **SampType:** LCSQC Units mg/L

SampID: LCSQC

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		**988**	1000	0	98.8	90	110	11/19/2012
Total Dissolved Solids	20		**998**	1000	0	99.8	90	110	11/19/2012
Total Dissolved Solids	20		**1000**	1000	0	100.4	90	110	11/19/2012

Batch R170714 **SampType:** MS Units mg/L

SampID: 12110723-002BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		**738**	500	242.0	99.2	85	115	11/19/2012

Batch R170714 **SampType:** MSD Units mg/L RPD Limit **15**

SampID: 12110723-002BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Dissolved Solids	20		**734**	500	242.0	98.4	738.0	0.54	11/19/2012

STANDARD METHODS 2540 D

Batch R170561 **SampType:** MBLK Units mg/L

SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Suspended Solids	6		**< 6**						11/15/2012

Batch R170561 **SampType:** LCS Units mg/L

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Suspended Solids	6		**94**	100	0	94.0	85	115	11/15/2012
Total Suspended Solids	6		**94**	100	0	94.0	85	115	11/15/2012
Total Suspended Solids	6		**92**	100	0	92.0	85	115	11/15/2012
Total Suspended Solids	6		**98**	100	0	98.0	85	115	11/15/2012
Total Suspended Solids	6		**90**	100	0	90.0	85	115	11/15/2012

Batch R170561 **SampType:** DUP Units mg/L RPD Limit **15**

SampID: 12110723-001B DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Suspended Solids	6		**< 6**				0	0.00	11/15/2012

Client: Barr Engineering Company

Work Order: 12110723

Client Project: National MTS - 25/86-0003

Report Date: 28-Nov-12

STANDARD METHODS 5310 C, ORGANIC CARBON

Batch R170625 **SampType:** MBLK Units mg/L

SampID: CCB

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)	1.0		< 1.0						11/16/2012

Batch R170625 **SampType:** LCS Units mg/L

SampID: CCV

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)	10.0		54.4	59.7	0	91.2	90	110	11/16/2012

Batch R170625 **SampType:** MS Units mg/L

SampID: 12110723-001EMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)	1.0		5.4	5.0	0.9100	88.8	85	115	11/16/2012

Batch R170625 **SampType:** MSD Units mg/L RPD Limit 10

SampID: 12110723-001EMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Organic Carbon (TOC)	1.0		5.4	5.0	0.9100	89.0	5.350	0.19	11/16/2012

EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)

Batch 83478 **SampType:** MBLK Units µg/L

SampID: MB-83478

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	11/19/2012
Zinc	10.0		< 10.0	10.0	0	0	-100	100	11/19/2012

Batch 83478 **SampType:** LCS Units µg/L

SampID: LCS-83478

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		46.2	50.0	0	92.4	85	115	11/19/2012
Zinc	10.0		479	500	0	95.8	85	115	11/19/2012

Batch 83478 **SampType:** MS Units µg/L

SampID: 12110723-002DMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		43.7	50.0	0	87.4	75	125	11/19/2012
Zinc	10.0		462	500	4.1	91.6	75	125	11/19/2012

Batch 83478 **SampType:** MSD Units µg/L RPD Limit 20

SampID: 12110723-002DMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Cadmium	2.00		44.3	50.0	0	88.6	43.7	1.36	11/19/2012
Zinc	10.0		468	500	4.1	92.8	462.2	1.27	11/19/2012

Client: Barr Engineering Company
Work Order: 12110723
Client Project: National MTS - 25/86-0003
Report Date: 28-Nov-12

EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)

Batch 83449 **SampType:** MBLK Units µg/L
SampID: MB-83449

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		**< 2.00**	2.00	0	0	-100	100	11/16/2012
Zinc	10.0		**< 10.0**	10.0	0	0	-100	100	11/16/2012

Batch 83449 **SampType:** LCS Units µg/L
SampID: LCS-83449

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		**45.7**	50.0	0	91.4	85	115	11/16/2012
Zinc	10.0		**482**	500	0	96.4	85	115	11/16/2012

Batch 83449 **SampType:** MS Units µg/L
SampID: 12110723-001CMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		**44.9**	50.0	0	89.8	75	125	11/16/2012
Zinc	10.0		**624**	500	153.1	94.1	75	125	11/16/2012

Batch 83449 **SampType:** MSD Units µg/L RPD Limit **20**
SampID: 12110723-001CMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Cadmium	2.00		**45.2**	50.0	0	90.4	44.9	0.67	11/16/2012
Zinc	10.0		**630**	500	153.1	95.5	623.6	1.08	11/16/2012

STANDARD METHODS 3030 E, 3113 B, METALS BY GFAA

Batch 83431 **SampType:** MBLK Units µg/L
SampID: MB-83431

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**< 2.00**	2.00	0	27.1	-100	100	11/16/2012

Batch 83431 **SampType:** LCS Units µg/L
SampID: LCS-83431

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**13.3**	15.0	0	88.6	85	115	11/16/2012

Batch 83431 **SampType:** MS Units µg/L
SampID: 12110723-001CMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**17.7**	15.0	5.6419	80.1	70	130	11/16/2012

Batch 83431 **SampType:** MSD Units µg/L RPD Limit **20**
SampID: 12110723-001CMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lead	2.00		**18.2**	15.0	5.6419	83.7	17.653	3.03	11/16/2012

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12110723
Report Date: 28-Nov-12

STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)

Batch 83435 **SampType:** MBLK Units µg/L
SampID: MB-83435

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**< 2.00**	2.00	0	0	-100	100	11/16/2012

Batch 83435 **SampType:** LCS Units µg/L
SampID: LCS-83435

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**13.1**	15.0	0	87.4	85	115	11/16/2012

Batch 83435 **SampType:** MS Units µg/L
SampID: 12110723-001DMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		**18.4**	15.0	5.8393	83.7	70	130	11/16/2012

Batch 83435 **SampType:** MSD Units µg/L RPD Limit **20**
SampID: 12110723-001DMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lead	2.00		**17.9**	15.0	5.8393	80.2	18.3875	2.86	11/16/2012

Teklab, Inc.
Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Barr Engineering Company
Client Project: National MTS - 25/86-0003

Work Order: 12110723
Report Date: 28-Nov-12

Carrier: Rick Schmidt

Received By: SRH

Completed by: Emily E. Pohlman
On: 15-Nov-12

Reviewed by: Michael L. Austin
On: 15-Nov-12

Pages to follow: Chain of custody [1] Extra pages included [0]

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C	0.0	
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice	☐	
Chain of custody present?	Yes ☑	No ☐				
Chain of custody signed when relinquished and received?	Yes ☑	No ☐				
Chain of custody agrees with sample labels?	Yes ☑	No ☐				
Samples in proper container/bottle?	Yes ☑	No ☐				
Sample containers intact?	Yes ☑	No ☐				
Sufficient sample volume for indicated test?	Yes ☑	No ☐				
All samples received within holding time?	Yes ☑	No ☐				
Reported field parameters measured:	Field ☐	Lab ☑	NA ☐			
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐				

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☐	No ☐	No VOA vials	☑
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers	☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐		
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA	☑

Any No responses must be detailed below or on the COC.

Custody seal(s) intact on shipping container/cooler. RS 11/15/12

Print Form

Teklab Chain of Custody

Pg. 1 of 1 Workorder 12110723

5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618)344-1004 ~ Fax:(618)344-1005

Barr Engineering Co.

1001 Diamond Ridge, Suite 1100

Jefferson City | MO | 65109

National MTS - 25/86-0003

Are the samples chilled? (•) Yes ( ) No with: (•) Ice ( ) Blue ice

Preserved in (•) Lab (X) Field

Cooler Temp 0 D Sampler SPM

FCP 11/15/12

Comments: Invoice to Mark Nations. Results to Allison Olds and Mark Nations, mnations@doerun.com.
Matrix is surface water.
Metals: Cd, Pb, Zn Custody seal intact upon pick up

Contact Allison Olds eMail aolds@barr.com Phone 573-638-5007 Requested Due Date Standard Billing/PO Per contract with Doe Run

Lab Use	Sample ID	Sample Date/Time	Preservative	Matrix	pH [1]	T.S.S. [3]	Sulfate [4]	Settleable Solids [9]	T.O.C. [11]	Total Metals [2]	Dissolved Metals [12]	Hardness [5]	Total Dissolved Solids [6]			
12110723-001	Nat-East	11-14-12 10:40	Unpres	Aqueous	X	X	X	X	X	X	X	X	X			
-002	Nat-NW	11-14-12 11:10	Unpres	Aqueous	X	X	X	X	X	X	X	X	X			
			Unpres	Aqueous												
			Unpres	Aqueous												
			Unpres	Aqueous												
			Unpres	Aqueous												
			Unpres	Aqueous												
			Unpres	Aqueous												

Relinquished By *	Date/Time	Received By	Date/Time
Stephen Maiharen	11-14-12 16:00	Stephanie Haynes	11/15/12 12:25
	11/15/12 14:25		

* The individual signing this agreement on behalf of client acknowledges that they have read and understand the terms of this agreement and that they have the authority to sign on behalf of client.